Lecture plan TVM 4155 2022

Week	Dates	Topic	Chapter	Homework
2	11+13 Jan	Introduction, motivation, repetition of basic hydraulics, non-uniform flow.	1-2	
3	18+18 Jan	Waves in rivers, St. Venands equations, kinematic wave, differential forms, HEC-RAS	2-3	1. Compound channel
4	25+25 Jan	Shallow-water equations, Dispersion in 1D.	3-4	2. Water Surface Profiles, spreadsheet
5	1+1 Feb	Grids, discretization in 2D/3D, HEC-RAS 1D	5	3. Physical model: Spillway
6	8+10 Feb	False diffusion, spreadsheet solution, high-order schemes	6	4. HEC-RAS 1D
7	15+17 Feb	Navier-Stokes equations, SIMPLE HEC-RAS 2D	6	5. HEC-RAS 2D
8	22+24 Feb	Turbulence models, boundary conditions residuals	6	6. Sedimentation tank, spreadsheet
9	1+3 Mar	Convergence, stability, solvers Free surface algorithms	6	7. SSIIM 1, Channel and Pier
10	8+10 Mar	Errors and uncertainties in CFD CFD programs. Start Limnology	6-7	8. SSIIM 2, Desilting basin
11	15+15 Mar	Limnology, Start Biology	7-8	9. OpenFOAM 1 Weir
12	22+22 Mar	Biology, start sediment transport: Shields, erosion, bed and susp. load	8-9	10. OpenFOAM 2 Weir
13	29+29 Mar	Bed forms, CFD modelling of sediments, local scour, reservoirs, intakes	9	11. Water quality, spreadsheet
14	5+5 Apr	Geomorphology, lab studies.	9	12. Sediment discharge
16	19+21 Apr	Parallelization	Note	
17	26 Apr	Summing up, exam info etc.	1-9	

The order of the homeworks may change depending on the covid-19 situation. The yellow markings denote lectures done on the same day. This is due to collisions on the time schedule with another course. In these weeks, the assistance for the homeworks will be given on Thursdays. In the other weeks, the assistance for the homeworks will be given on Tuesday afternoon.